

7.0 CIRCULATION ELEMENT

The *Circulation Element* of the **Sedona Community Plan** will assist the City in developing a comprehensive transportation system which addresses the circulation planning of the community as it relates to the land use policies set forth in the Community Plan, by balancing future transportation needs with community sensitivity and projected land uses.

The Sedona Area Transportation Study (Parsons, Brinckerhoff, July 1991); the Sedona Highway Corridor Assessment (CH2MHill, adopted May 1997); the West Sedona North/South Off-Highway Circulation Study (CH2MHill, November 1997) and the Growth Advisory Committee Report (February 1998) were utilized as the key resources in the preparation of the Circulation Element, in combination with feedback from concerned citizens and organizations, in conjunction with these and other planning efforts.

Land use sets the stage for traffic growth in terms of time and magnitude. Although the majority of vehicle trips are locally generated, legislative constraints on the amount of local growth will do little to change the growing external pressure of visitor traffic, and that in some cases alternatives to the single occupant vehicle may be appropriate for Sedona to maintain its small town character and charm.

The *Circulation Element* of the **Sedona Community Plan** is presented in the following sections:

- 7.1 Key Issues
- 7.2 Recommendations
- 7.3 Action Program

The *Circulation Element* has been prepared to provide coordination of development and land use with the future transportation demands. This element identifies a variety of issues and problems the community should be directing efforts to resolve. An examination of future conditions (see *Community Plan Supplement – Existing and Future Conditions*) relates the future development scenario with transportation system needs, and provides a problem solving approach for dealing with those needs in a manner acceptable to the community.



7.1 KEY ISSUES

Overview

The process of predicting the extent to which vehicular traffic will grow over time was undertaken based on assumptions of future population and land use. However, the difficulty in validating that process is tested over the years as planned land uses change and new development occurs.

As Sedona develops over time, traffic growth will need to be continuously monitored and evaluated. Over the timeframe of the traffic predictions, conditions will likely cause the City to reflect upon the various long-range recommendations of the **Sedona Community Plan** and determine which issues identified as potential problems actually materialize and which new issues will arise and cause concern. As such, the long-range planning of the circulation system must remain a flexible process, and allow the City to shape the circulation system in response to its current and future needs. Based on the traffic forecasts presented in the *Existing and Future Conditions* supplement, traffic will likely increase by 40 – 85% on the main roadways in Sedona by the year 2019¹.

New development will cause the need for additional access and other circulation improvements, tourism will continue to increase and the character of Sedona will become, and in fact already is, endangered by the increase in traffic. The delicate balance between satisfying the capacity needs of the roadways to carry additional traffic will need to be carefully weighed against community policy regarding preserving the natural beauty and charm of Sedona.

The *Sedona Area Transportation Study* concluded that the combination of increased traffic over the span of the planning horizon would result in a significant reduction in comfort level of drivers. Intersection congestion would increase significantly, and the number of locations requiring traffic signals to control traffic would increase.

Increased traffic on SR 89A and SR 179 will result in safety issues related to business and residential access along these main roadways. Increased visitor traffic will also bring more people destined for area commercial facilities and cultural attractions.

Specific transportation issues expected to be of concern over the next 15 years in Sedona include:

- The development of alternative routes for regional traffic access and bypass;
- The development of methods to limit the increase of automobile traffic;
- City policy on new developments relative to transportation system impacts;
- Thorough examination of creative alternatives to transportation problems consistent with public sentiment;
- Potential implementation of shuttle transit;
- Adequate parking facilities; and
- Subdivision interconnections.

¹ Verde Valley Regional Transportation Study Update (Lima and Associates – July 1999).

*Note: Does not include SR 89A in Uptown where increases are estimated at over 100%)

System Deficiencies

The *Sedona Area Transportation Study* identified a variety of existing deficiencies resulting from:

- \$ Traffic Congestion
- \$ Unacceptable Levels of Service
- \$ High Accident Frequency
- \$ Safety Deficiencies
- \$ Access/Mobility Issues
- \$ Offset Intersection Alignment
- \$ Lack of Alternative Routes
- \$ Inadequate Parking
- \$ Lack of Planned Bicycle Coordination
- \$ Lack of Planned Pedestrian Circulation
- \$ Lack of Transit Facilities

Sedona's interior roadway network now relies heavily on SR 179 and SR 89A for interconnections of local streets. As the City's only true "arterials," both state highways not only accommodate the traffic associated with Sedona's two to four million annual visitors, (according to some estimates) but also its local population. The challenge is to allow both regional and local functions to coexist with minimal conflict. This challenge is further tempered by a need to identify and implement future system improvements that are not only functionally efficient, but also compatible with the community's goals of maintaining the area's scenic and natural resources, as well as its small-town character as described in the **Sedona Community Plan**.

SR 179

The SR 179 corridor is well known as a scenic, aesthetic highway, and is in fact designated as a scenic highway. Although there are several deficiencies identified along SR 179, it is difficult to address physical improvements without impacting the aesthetic features.

Both the 1992 SR 179 Corridor Study and the Initial Location/Design Report (December 1996 draft) prepared by BRW for the Arizona Department of Transportation outline a proposed 4-travel lane section on SR 179 from the Village of Oak Creek to the SR 89A intersection in Sedona. Concerns regarding potential aesthetic impacts of this major widening project on the existing scenic corridor were initially raised with BRW and ADOT during the preparation of the Uptown/Creek Area Plan in 1992 and continue to be shared by many in the community. In February 1998, the City Council's appointed Advisory Committee on Growth recommended that the City work with ADOT to mitigate the visual impacts of ADOT's proposed plan within the City.

Although ADOT has maintained that four and five lanes are necessary to safely accommodate projected traffic on the highway, many in the community have requested that ADOT consider other highway improvement options that do not involve four and five lanes. During the 2001-2002 Community Plan update, several more specific concerns were raised regarding the proposed SR 179 improvements. ADOT's proposed five-lane section and accompanying right-of-way includes a

significant number of noise and retaining walls and cut and fill slopes. The visual impacts and removal of vegetation from these and other improvements will change the character of this roadway.

It is important that Sedona is recognized as a very unique national treasure that will require unique and creative solutions to mitigate these impacts. The challenge will be in making changes that will not result in a negative impact on the small-town character of the community.

Outside of the existing commercial area, the SR 179 corridor is zoned for single-family residential uses. It is vitally important that right-of-way acquisition implemented in conjunction with highway improvements does not result in substandard or unusable residential lots. Many in the community are concerned that there will be increased pressure to rezone residential properties to commercial due to view and noise impacts and right-of-way acquisition.

Congestion at the SR 179/89A intersection is also a key area of concern once major improvements are made to the SR 179 corridor. An increase in the number of vehicles arriving more quickly at the intersection due to the highway's increased efficiency may result in increased congestion at the intersection. A thorough study of this intersection and Uptown area traffic flow must be coordinated with SR 179 planning to ensure that the best possible traffic solution can be found prior to the programming of SR 179 construction.

SR 89A

The primary transportation corridor in west Sedona is SR 89A, a 5-lane arterial roadway. Currently this facility serves regional traffic in combination with local traffic accessing the numerous commercial properties that flank both sides of the highway. The combination of local short trips with regional trips has created a situation of high traffic volumes and a significant number of turning volumes. The high turning volumes observed throughout the corridor are an element adding to traffic delays, and the potential for accidents.

Many local trips within west Sedona, whether it be by auto, bike, or foot must use SR 89A because few other routes are available. A significant number of trips accessing SR 89A from the surrounding neighborhoods are forced to travel on the highway less than one-half mile. These short trips can amplify existing congestion, especially if drivers are forced to weave across lanes of traffic in a short distance.

To help limit the number of unprotected turning conflicts, the City of Sedona has been involved in implementing traffic signals along SR 89A. The originally adopted **Sedona Community Plan** indicated that the need for new signal locations must be carefully evaluated, and the minimum spacing of traffic signals should be one-quarter mile. Although seven new traffic signals have been installed on SR 89A since 1991, these guidelines would not allow for traffic signals to be implemented on SR 89A at the exit point of each individual neighborhood.

In many locations SR 89A provides adjacent sidewalks. However, the cross section of SR 89A is not wide enough to allow for bike lanes to be incorporated. The urban character of the corridor with numerous driveway locations, and intersections with high turning volumes, creates difficulties in providing alternate modes on the corridor.

The limited opportunities for widening SR 89A or implementation of new traffic signals indicate that relief from traffic congestion on SR 89A will not be obtained by conventional methods, such as highway widening. Solutions must be found that allow for trips to be made off of the highway, however, these recommendations must not conflict with the desired character that the community wishes to preserve.

The importance of SR 89A to the regional transportation system will not be diminished as time marches on. In fact, the upgrade of SR 89A to a 4-lane divided highway from Cottonwood to Sedona was completed in 2002. The degradation of traffic conditions predicted for the year 2018 is primarily due to the substantial increase in traffic on both SR 89A and SR 179. A portion of this increase will be due to regional and tourist trips, therefore City land use planning or limitations on growth within Sedona cannot curb increases in traffic volumes entirely.

Intersection and Road Segment Congestion

An examination of existing traffic conditions includes an analysis of intersection operations and road segment traffic flow. Traffic conditions are normally evaluated and compared using Level of Service. The concept of Level of Service is defined as a qualitative measure describing operational conditions within a traffic stream and the perception by motorists and/or passengers. Level of Service generally describes these conditions relative to speed and travel time, freedom to maneuver, traffic interruptions, comfort, convenience and safety. Typically this is presented on a scale from "A" to "F".

A Level of Service "A" represents a free flow of traffic where each vehicle is virtually unaffected by other vehicles. A Level of Service "F" represents forced or breakdown flow. Level of Service "C" marks the beginning of the range of flow in which the operation of individual users becomes significantly affected by interactions with others in the traffic stream. The selection of speed is now affected by the presence of others, and maneuvering within the traffic stream requires substantial vigilance on the part of the user. Level of Service "F" conditions exist wherever the amount of traffic approaching a point exceeds the amount that can traverse the point. Operations are characterized by stop and go waves, and are extremely unstable.

According to the *Sedona Highway Corridor Assessment in 1996*, the SR 89A corridor operated at a Level of Service "B", with an average speed of approximately 30 mph. However, several of the individual intersections exhibited unacceptable operations. The "Y" intersection (signalized intersection at SR 89A and SR 179) operated at a Level of Service "F" in the morning peak hour, and the Coffee Pot intersection (with SR 89A) operated at a Level of Service "E" in the afternoon peak. Most of the unsignalized intersections along SR 89A from Dry Creek Road to the "Y" intersection have movements that operate at a Level of Service "F" in one or both of the peak periods. The Jordan intersection in Uptown area operated at a Level of Service "E" in the afternoon peak.

The Sedona Highway Corridor Assessment projected that by 2010, in the PM peak hour, the SR 89A corridor would operate at a Level of Service "F" primarily due to delays at the signalized intersections, including the "Y" intersection. In the AM peak hour, the SR 89A corridor is predicted to operate at a Level of Service "D" with an average speed of 19 mph, instead of the current 30 mph.

Current and projected Level of Service issues are discussed in detail in the adopted Sedona Highway Corridor Assessment and are graphically depicted in **Figures 5** and **6**. Unsignalized intersections will operate at a Level of Service “F” during both AM and PM peak periods. As discussed in the *Existing and Future Conditions Supplement*, these projected levels of service will probably occur closer to 2018, rather than 2010.

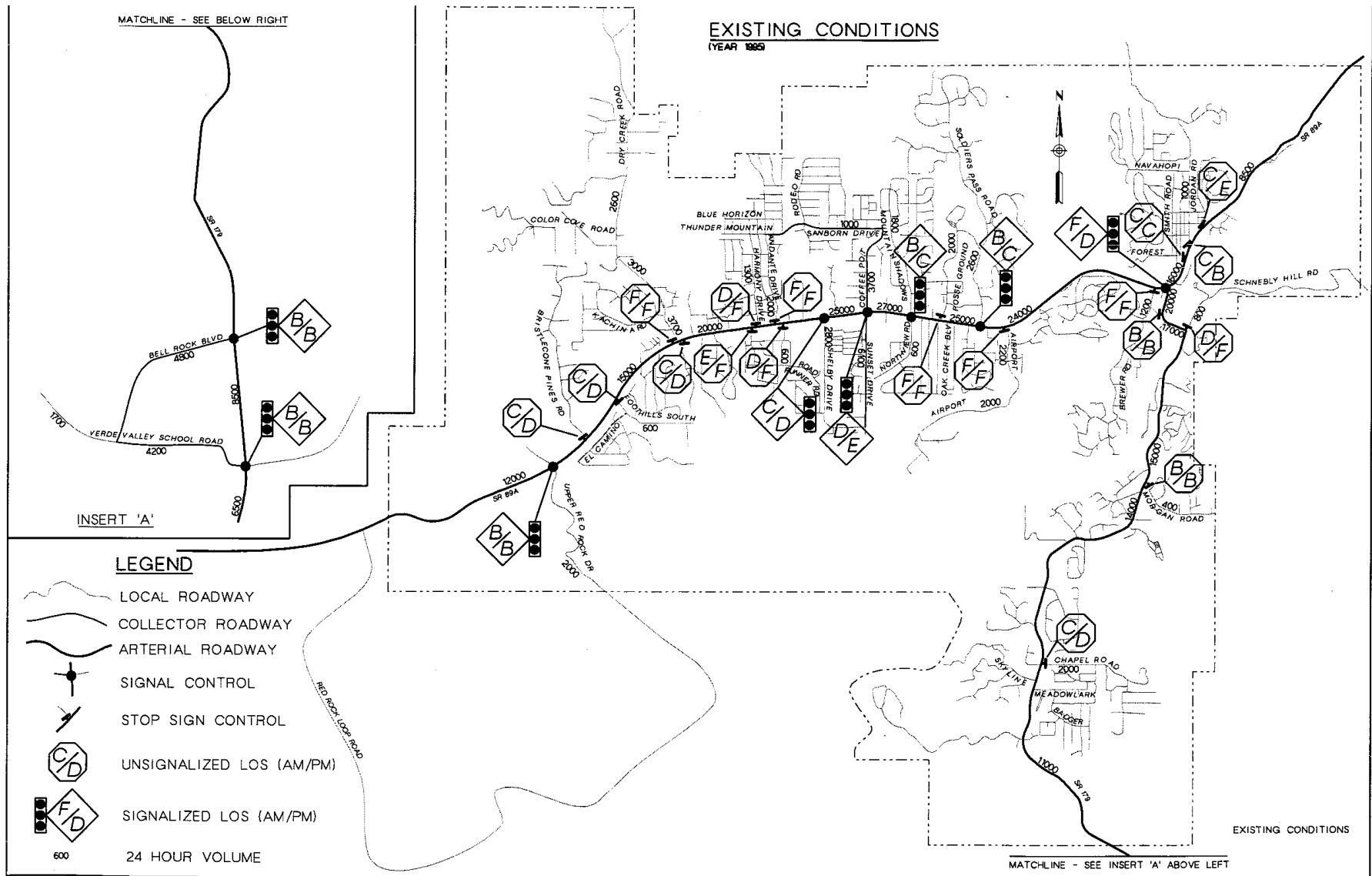


Figure #5

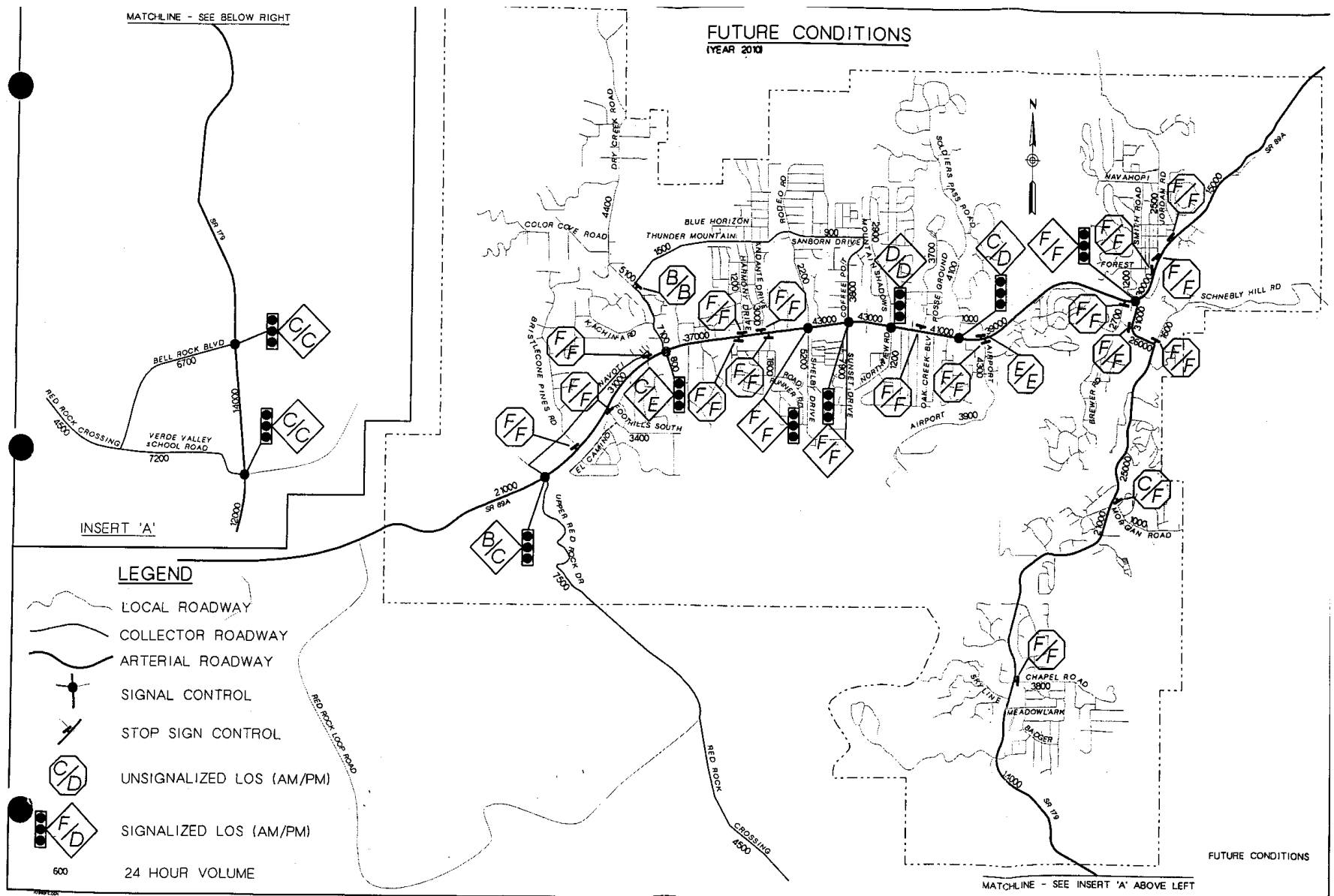


Figure #6

Uptown Pedestrian Circulation and Parking

As the primary destination for most visitors and visitor-based shopping, the Uptown area lacks appropriate pedestrian improvements and unified public information regarding available parking. Visitors are often confused and have difficulty finding parking spaces. This confusion sometimes stops highway traffic.

The convenience of the on-highway parking spaces (which are within the highway right-of-way) causes these spaces to be utilized first and for long-term use. This forces the short-term errand shoppers into the adjacent parking lots, which, in many cases, are intended for parking only for designated businesses and not for area-wide or *general* parking use. Adequate directional information is lacking for parking lots (such as Sinagua) that can more effectively accommodate general parking. The *Sedona Origin-Destination Study* (CH2MHill, 1996) found that over half of the durations of on-street parking are long-term. Typically, on-street parking is used by short-term errand shoppers rather than for long-term use, which would tend to cut down on the number of side-street trips and turning movements.

The adopted *Sedona Highway Corridor Assessment* contains recommendations to address circulation issues in the Uptown area. In 1996, Sedona Main Street was formed as part of the federal Main Street Program. As a result, planning for Uptown improvements is on-going and the recommendations of the *Highway Corridor Assessment* provide a valuable resource. At the end of 1997, Sedona Main Street began facilitating the implementation of some of these improvements with a pedestrian crossing and mid-block pedestrian signal between Jordan Road and Apple Avenue. A traffic signal was also installed at Forest Road. A public parking lot was also constructed in 2001. Major pedestrian improvements in Uptown are also targeted for 2004-2005.

7.2 RECOMMENDATIONS

7.2.1 Vision, Goals, Objectives/Policies

The Vision Statement, Goals, Objectives/Policies developed for the *Circulation Element* of the **Sedona Community Plan** by the community are presented below.

CIRCULATION VISION

Provide environmentally sensitive and aesthetic integration of a circulation network that efficiently and safely transports residents and visitors throughout the region, with an emphasis on non-motorized and transit-related travel modes.

As planned improvements are considered, it will be critical that the community is significantly involved in the planning process to ensure that solutions are agreed upon which maintain environmental quality, community character and meet future needs.

GOAL 1.0 **Ensure that SR 179 will always be known as a scenic corridor of uncommon beauty and that improvements to the highway are made in the interest of public safety and in keeping with the scenic sensitivity of this world-renowned gateway to the community.**

Objectives/Policies

- 1.1 Prepare a specific area plan for the SR 179 corridor through dialogue with Arizona Department of Transportation to pursue SR 179 improvements that result in maximum preservation of natural vegetation and open space, guide future development/re-development, provide for community needs, control access, locate potential shuttle transit stops, accommodate pedestrians and bicycles and minimize impacts on adjacent property owners.
- 1.2 Provide access control, traffic system management and other improvements on SR 179 in keeping with the scenic sensitivity of the highway corridor.
- 1.3 Maintain residential zoning along the SR 179 corridor unless an adopted Specific Area Plan identifies specific locations for alternative uses that are compatible with adjacent residential areas and provide specific community needs and benefits along the corridor.

GOAL 2.0 Provide the most effective means of alleviating traffic congestion at the SR 89A/179 intersection that can be realistically implemented.

Objectives/Policies

- 2.1 Evaluate alternative traffic control improvements to the SR 179/89A intersection through coordination between ADOT, the City and major stakeholders. Alternatives should include, but are not limited to, an extension of Ranger Road as a bypass route or new terminus for SR 179, the use of Ranger/Brewer Roads as part of a one-way circulator and a “roundabout” at the intersection if the Ranger Road bypass cannot be realistically implemented and/or funded.
- 2.2 Complete a thorough study of the “Y” intersection and Uptown area traffic flow to ensure that the best possible traffic solution can be found prior to the programming of SR 179 construction.

GOAL 3.0 Ensure safe and efficient vehicular circulation on SR 89A within Sedona.

Objectives/Policies

- 3.1 Implement comprehensive access control and traffic system management on SR 89A in west Sedona to enhance the efficiency of the highway.
- 3.2 Design and construct access control and traffic system management improvements on SR 89A in Uptown Sedona to reduce parking conflicts with through traffic and enhance traffic operations and safety.

GOAL 4.0 Provide a safe and efficient off-highway vehicular circulation system to provide alternatives to highway travel.

Objectives/Policies

- 4.1 Provide off-highway inter-neighborhood connections as multiple, indirect routes to diffuse traffic, rather than high speed collector routes, to enhance safety and maintain the integrity of neighborhoods.
- 4.2 Employ “traffic calming” techniques where applicable, including signage, alternative paving, etc., to further enhance neighborhood safety.
- 4.3 Provide alternative street connections adjacent to or near commercial uses to provide alternatives to the highway.

GOAL 5.0 Ensure safe and efficient non-motorized traffic circulation within the community.

Objectives/Policies

- 5.1 Provide alternative modes of travel (i.e., bicycle, pedestrian, and equestrian pathways) through the development of a circulation system that integrates compatibly with the sensitive and picturesque topography of Sedona
- 5.2 Design the physical or implied separation of motorized circulation and other modes of travel by promoting the development of bicycle paths, equestrian trails, pedestrian sidewalks and jogging paths separated from streets.
- 5.3 Utilize accepted circulation system components to enhance the safety of non-motorized modes of circulation.
- 5.4 Provide Uptown area pedestrian improvements to enhance safety, provide a high quality visitor experience, enhance area character and reduce the need for vehicular travel.

GOAL 6.0 Implement circulation recommendations that are compatible with and designed to complement, the land use and environmental quality recommendations of the Sedona Community Plan.

Objectives/Policies

- 6.1 Investigate the formulation of circulation and design solutions that assist in the creation of a unique identity and character for the community.
- 6.2 Establish Sedona-specific design standards for:
 - Arterial Roadways
 - Collector Roadways
 - Local Roadways
 - Bicycle Pathways
 - Pedestrian Pathways
 - Equestrian Pathways
 - Equestrian Trails
- 6.3 Work with ADOT to establish highway standards appropriate for a small community rather than a traditional highway.

GOAL 7.0 Provide adequate parking for both residents and visitors.

Objectives/Policies

- 7.1 Provide public parking areas that are compatible with and complimentary to the land use and environmental quality recommendations presented elsewhere in this plan and linked to a transit shuttle system.
- 7.2 Strategically locate off-site parking facilities to promote pedestrian use and the utilization of alternative modes of transportation.

GOAL 8.0 Establish a shuttle transit system in the Sedona area and support a regional commuter system to serve the needs of residents, employees and visitors.

Objectives/Policies

- 8.1 Define the existing and future transportation needs as they may relate to transit for residents, employees and visitors.
- 8.2 Conduct a study to determine the feasibility of instituting a shuttle transit system and related parking facilities in the Sedona area, and its cost-effectiveness.
- 8.3 Evaluate the cost of implementing a phased shuttle transit system in Sedona, and identify roles of the public and private sector for implementation.

GOAL 9.0 Explore methods to minimize residential and visitor vehicular trips.

Objectives/Policies

- 9.1 Create a “Reduce Your Trips Program” through city-wide education of alternatives to vehicle use for shopping, banking, mail, delivery options and car pooling.
- 9.2 Provide appropriate land use options to minimize highway travel.

7.2.2 Specific Recommendations

The intent of the *Circulation Element* of the **Sedona Community Plan** is to provide for development of the community’s circulation system based on land uses and controlled community growth, consistent with the maintenance of a desired local character.

Selection of specific circulation improvement projects should be based on the availability of funds, benefit to the general public, and level of community support.

In order to meet the challenge of new improvements to the community's circulation system, the City of Sedona will need to address some target issues identified during the course of the development of the Sedona Area Transportation Study, the Uptown/Creek Area Plan, the West Sedona Commercial Corridor Assessment, the adopted Sedona Highway Corridor Assessment and the West Sedona North/South Off-Highway Circulation Study.

These issues include:

- New roadway linkages
- SR 89A and SR 179 Improvements
- Uptown pedestrian improvements and parking
- Transit
- Pedestrian and bicycle circulation
- SR 89A to SR 179 alternate route

Since the main highways tend to have the most dramatic impact on transportation in Sedona, attention to their development and the side issues associated with them should be the highest priority of the City.

However, circulation improvement priorities are also dependent upon available funds, new development opportunities, opportunities for right-of-way acquisition, and community support. Changes in priority are expected in a dynamic community situation and will require the City to re-evaluate these priorities on an annual basis in conjunction with the review of the Flexible Capital Budget (Capital Improvement Program).

A. Highway Improvements - SR 179

SR 179 serves as the primary link between Sedona and I-17, and ultimately to Phoenix. Increasing traffic volumes and development along this route will create increased conflicts between vehicles on the highway and vehicles utilizing highway access points.

The SR 179 corridor is well known as a scenic highway that blends with its surroundings. Although there are several deficiencies identified along SR 179, it is difficult to address physical improvements without impacting its aesthetic features.

The SR 179 Design Concept Report (BRW/ADOT) proposes improvements within Sedona that include widening the roadway to four-travel lanes with median placement. Access control recommendations were coordinated with the Highway Corridor Assessment (CH2MHill) within the commercial area from approximately Canyon Road north to the "Y" intersection. Although ADOT has maintained that four and five lanes are necessary to safely accommodate projected traffic on the highway, many in the community have requested that ADOT consider other highway improvement options that do not involve four and five lanes due to potential environmental, aesthetic and other community impacts.

The recommendations in the Community Plan are intended primarily to address the mitigation of impacts to the landscape, community character and to properties along the corridor regardless of the specific roadway configuration that is ultimately approved.

Improvements to the SR 179 corridor should be made in the interest of public safety, but the scenic quality of the highway is also of paramount importance. As the gateway to the Sedona area, this highway not only provides dramatic scenic views, but also provides an experience of being within the natural environment. One of the most important features of this experience is the natural vegetation growing immediately adjacent to the highway. Outside the City limits, this effect is the result of the corridor's location on National Forest lands. Within the City, it is largely the result of single-family residential land use on about 80% of the corridor. Only about 1/3 of the residential lots along the highway have been developed.

Another important feature of the SR 179 'experience' is that existing structures along the highway are generally small-scale and provide a sense of "small-town" as one enters the community.

With future improvements to the highway, what happens at the "edge" of the highway will be a very important consideration in maintaining the current experience.

The need to plan the "edge" of the built/natural environment should be a consideration at both the right-of-way boundary and within the right-of-way. Part of the challenge will be achieving this goal while providing accommodations for pedestrians and bicycles, sound attenuation, shuttle transit stops, fill and cut slopes and other improvements.

The design of the highway is also important relative to the small-town character of the community. Within the City, the highway should have the effect of a "context-sensitive" street rather than a high-speed thoroughfare. A 2 to 3 lane highway with the amenities and considerations discussed above offers the best opportunity to maintain a small-town character and be sensitive to the context in which it operates.

In addition to what happens within the highway right-of-way, the consequences of not planning for the corridor adjacent to the right-of-way may be the continued development of residential parcels with no coordinated planning oversight to address retention of natural open space, landscaping and building design, locations of walls and other features.

It is recommended that a specific Plan for the SR 179 corridor be prepared through dialogue with ADOT to pursue highway improvements in keeping with community goals and policies and that a design team comprised of City and ADOT representatives and consultants and major stakeholders be assembled to facilitate this process. This planning effort should be the highest immediate priority for the community.

This planning process should address the following:

Open Space

- Within the right-of-way, maximum preservation of natural vegetation immediately adjacent to actual improvements is an important consideration. Clear-cutting wide swaths of vegetation

where no actual improvements are constructed should be avoided at all costs. Where possible, trees should be replanted and replacement landscaping with native vegetation provided.

- Outside the right-of-way, most of the corridor consists of single-family residential lots approximately 1/3 of which are developed. The most important consideration is the retention of unobstructed natural vegetation and open space areas up to the right-of-way boundary. While possible ADOT placement of sound walls adjacent to existing residences in conjunction with highway improvements is a more immediate potential constraint, longer term opportunities to achieve open space preservation should be evaluated.

These potential opportunities may include:

- City and/or ADOT acquisition of residential properties or easements or purchase through a land trust or other entity.
- Location of alternative, low impact, non-residential uses where open space preservation can be assured through site planning and development review that is not currently required for single-family residential lots

Alternative Uses

In areas where acquisition of natural open space is not possible, consideration of “low impact” alternative land uses that are compatible with adjacent single-family uses should be evaluated. Potential benefits include:

- Maintenance of small-scale, single-story buildings and design and development review oversight consistent with the need for very high standards of visual quality
- Retention of natural open space and/or appropriate landscaping (i.e. native vegetation)
- Consolidated access points rather than multiple curb cuts on the highway
- Buffering of single-family residences from highway impacts

Mitigation of Highway Impacts on Property Owners

The placement of sound walls conflicts with the objectives of maintaining a natural edge on the corridor, may interfere with scenic views and are inconsistent with small-scale, small-town character objectives. Alternatives should be evaluated first, including, but not limited to:

- ADOT acquisition of right-of-way that allows sufficient yard space to buffer highway noise through heavy landscaping or natural vegetation and assistance to residents to provide landscaping
- Use of rubberized asphalt to eliminate the need for soundwalls or to offset wall heights
- Provision of heavy landscaping or retention of natural vegetation within the right-of-way
- Reduction of design speed

Although placement of sound walls should be avoided wherever possible, site sensitive placement is an important consideration if other alternatives cannot be implemented.

Right-of-way acquisition should be coordinated with specific area plan objectives regarding open space needs, alternate uses and to address impacts to existing residences.

Highway Design Features

The use of sensitive design practices should be employed that create the effect of a “context-sensitive” city street rather than a high speed thoroughfare. The following should be addressed:

- Significant height and horizontal alignment variations on sound walls, if walls are built
- Use of native stone and plant screening on retaining and sound walls, if walls are built
- Alternative pavement treatment of center lane where raised medians will not be constructed
- Landscaping of raised medians within the City with native drought tolerant vegetation
- Maintenance of median landscaping
- Maximum grade on cut and fill slopes to reduce the amount of disturbed area
- Use of more environmentally-sensitive alternatives to standard tubular overhead directional signs
- Use of extreme care in design/construction in riparian areas near Oak Creek so that large trees (e.g. Sycamores/Cottonwoods) are not removed

Community Needs

- Provisions for pedestrians and bicycles. A meandering pedestrian pathway should be separated from the curb with landscaping wherever possible.
- Undergrounding of above-ground utility lines. The City, ADOT and APS should work together in coordinating the undergrounding of overhead lines.
- Evaluation of re-development options in the commercial area, including public use areas, potential park sites, parking and linkages to a future creek walk. Public spaces and uses and park sites, however, should be carefully evaluated relative to potential additional traffic generation in this highly congested area.
- Evaluation of potential creekside park sites, including property across the creek from Tlaquepaque that could also include a pathway with a pedestrian underpass. This creekside park would also provide a potential pedestrian link to floodplain area north of the bridge. Opportunities for acquisition in conjunction with ADOT right-of-way acquisition on SR 179 should be explored.
- Location for future shuttle transit stops should be coordinated with the Shuttle Transit Feasibility Study
- Provide planned vehicular and pedestrian traffic circulation improvements and access

SR 89A/SR 179 Intersection

Following a thorough evaluation of several alternatives, the City's adopted "Highway Corridor Assessment" (CH2Mhill, 1996) recommended an extension of Ranger Road as the best solution for reducing traffic congestion at this intersection. This alternative is expected to reduce traffic at the intersection by 43 percent in the year 2010. This alternative proposes a new traffic signal on SR 89A approximately one-quarter mile west of the existing intersection and another new traffic signal at the SR 179/Ranger Road intersection. The fourth leg of this intersection would be Portal Lane, realigned to the west side of the existing parking area for Tlaquepaque.

In 1997, the City Council requested that Arizona Department of Transportation include the Ranger Road extension as part of SR 179, abandoning the existing SR 179 segment from Ranger Road to the existing SR 89A intersection, to the City.

However, implementation of the Ranger Road extension is uncertain due to high costs, level of participation by ADOT, coordination with other improvements and developments, the magnitude of the project and other factors. There may be other good traffic solutions for this intersection as well. It is recommended that the City continue to coordinate with ADOT on evaluating this and other potential traffic solutions to the "Y" intersection, including, but not limited to, the use of Ranger/Brewer Roads as part of a one-way circulator, and the potential for a "round-about" at this intersection.

A thorough study of this intersection and Uptown area traffic flow should be coordinated with SR 179 planning to ensure that the best possible traffic solution at the "Y" can be implemented. This study should evaluate alternatives to traffic flow in Uptown, including the relationship to parking facilities and an analysis of how much traffic can be accommodated in Uptown. This study must be completed prior to the programming of SR 179 and "Y" intersection construction.

B. Highway Improvements – SR 89A

The Sedona Highway Corridor Assessment, adopted in May 1997, outlines recommended improvements for SR 89A and a portion of SR 179 based on previous planning efforts, updated traffic modeling and Origin-Destination Study and coordination with Arizona Department of Transportation (ADOT), Yavapai County, Northern Arizona Council of Governments, Design Group Architects and the City.

The following recommendations for the highway corridors have been updated with the recommendations of the adopted Sedona Highway Corridor Assessment.

The Sedona Highway Corridor Assessment prioritizes highway and related improvements as follows:

- Uptown Improvements and Parking (SR 89A)
- Ranger Road Bypass to the SR 89A/SR 179 intersection
- Access control provisions on SR 89A (west Sedona) and SR 179
- Transit System Improvements

SR 89A

As the major spine through the City of Sedona, SR 89A carries not only locally-generated traffic destined for points outside of Sedona and to businesses along its length, it also carries regional and tourist traffic passing through Sedona or destined for sites within the City. It is desirable, considering the traffic function of this roadway, to provide a reasonable level of driver comfort and safety as long as the method for doing so does not conflict with the desired character the community wishes to present.

It is not likely that TSM measures alone will significantly improve the traffic conditions on SR 89A as they are currently deficient beyond the point of benefit from such measures. Likewise, it is not possible to identify the amount of time that a specific solution will adequately serve a roadway because all traffic projections are predictions of the future. The prudent approach is to re-evaluate existing traffic conditions on a periodic basis. In fact, in some cases traffic volumes actually may be reduced as new roadway links attract portions of the traffic volume previously forecast for a roadway, negating the need for some improvements.

Since SR 89A is controlled by ADOT, all modifications must be approved by and coordinated with ADOT, including the installation of access points and new traffic signals. It is recommended that the City seriously evaluate the implications of assuming responsibility for this roadway within the City limits where it may be necessary to achieve community goals that may be otherwise difficult to achieve. This would then give the City authority over improvements and the direction of future modifications, including, but not necessarily limited to access control, pedestrian and aesthetic improvements, medians and transit stops.

Uptown Area (Main Street)

Following an evaluation of several alternatives, the Highway Corridor Assessment recommended that traffic signals be provided on SR 89A at Forest Road, with a pedestrian crossing; a pedestrian traffic signal and crossing mid-way between Jordan Road and Apple Avenue and a traffic signal/pedestrian crossing just north of Art Barn Road in conjunction with anticipated new major development at that location. These improvements with the exception of a signal at Art Barn Road have all been implemented. The study also recommended access control measures including median placement. The Sedona Main Street Program in conjunction with the City and ADOT, has modified this original concept somewhat and is currently pursuing implementation of major pedestrian improvements.

Uptown Area Parking

Provisions for additional parking facilities off of SR 89A will help mitigate the traffic and parking problems in the Uptown area. To be effective, however, the parking facilities must be properly signed and convenient access provided. The City completed the construction of a public parking lot in 2001.

From the Origin-Destination Study, it was demonstrated that the majority of parking in the Uptown area is long term, however, short-term parking is essential for the businesses, and a portion of the existing parking should be provided either within the right-of-way, or behind the businesses. A significant amount of the parking within the SR 89A right-of-way, although desirable, should be eliminated and substituted with alternative parking lots off the main roadway or located outside of the Uptown area. Parking areas outside the Uptown area may need to be supported by a transit shuttle.

The following should be considered in future Uptown parking facilities:

1. Transit routes and transit stop locations will play a key role in the number and convenience of parking options.
2. On-street parking on SR 89A is limited, but still important to the short-term parking needs.
3. Parking on side streets (one-way couplets) offer limited additional spaces, but could be effective for short-term mitigation.
4. Utilization of private lots for general public use (e.g. adjacent to proposed developments) and shared lots between businesses would optimize available space in the Uptown area.

West Sedona

The adopted Sedona Highway Corridor Assessment provides a concept plan for raised medians and combined access drives to reduce the number of left turn conflicts throughout the corridor.

This concept proposes median segments with strategically-placed full access opportunities between Juniper Drive and Airport Road in west Sedona. The SR 89A Location/Design Study commissioned by ADOT for providing a four-lane highway between Sedona and Cottonwood also proposed a raised median segment from Juniper Drive to west of Upper Red Rock Loop Road.

Between Soldier Pass and Northview Roads, alternate commercial access off-highway is recommended as well as an eventual four-way intersection at Soldier Pass Road. Coupled with this scenario would be the eventual closure of the SR 89A/Birch, Inspirational and View Drive intersections. This would funnel traffic from the commercial areas to the existing Northview traffic signal and to a re-aligned and potentially signalized Posse Grounds Road/Oak Creek Boulevard signal. Although not specified in the Highway Corridor Assessment, the Phase One West Sedona Commercial Corridor Study has suggested a potential connection from Saddlerock Drive to a re-aligned Soldier Pass Road extended south of the highway. This would provide commercial access to another signalized location. For this area between Northview and Soldier Pass Road, the entire scenario would be dependent upon significant re-development of the area. (see *Land Use Element*).

Eventual signalization and re-alignment of the Andante/Stutz Bearcat Intersection is also recommended for the west Sedona corridor.

The need for new traffic signals in Sedona must be carefully evaluated because unnecessary traffic signals significantly increase delays, increase accidents and add to driver frustration. Traffic signal spacing should be a minimum of one-quarter mile in order to achieve coordinated traffic progression,

and the interconnection of traffic signals will allow coordinated operation of the signal timing, resulting in the coordinated flow of traffic as it moves from one signal to the next.

The implementation of raised medians from Juniper Drive to Airport Road would require a great deal of communication and cooperation between commercial property owners, the City, and ADOT. Considerations include:

- Raised, landscaped medians and associated maintenance costs vs. a combination of raised and non-raised medians or non-raised medians only. Different paving surfaces could also be considered in lieu of raised medians with landscaping.
- Forming agreements between property owners on alternate, shared access
- Detailed design work required
- Commercial re-development timeframes
- Programming improvements with ADOT

It is recommended that the City first consider a program to begin discussions with and among property owners to assess feasibility of implementation in specific locations.

The City currently implements access control measures in conjunction with new development and through coordination and approval from ADOT. The Highway Corridor Assessment now provides a valuable tool in the review of new development proposals. A more specific Access Control Plan incorporating negotiated median locations should be a long-range goal of the City.

C. Traffic System Management

Many Traffic System Management (TSM) improvements can enhance safety and traffic operations, particularly along the arterial and collector roadways. These approaches include:

- Speed Limit Evaluation
- Upgrading of Signing
- Installation of Left Turn Arrows
- Installation of Turn Restrictions
- Upgrading of Pavement Markings
- Installation of Raised Pavement Markings
- Elimination of Hazardous Conditions
- Elimination of Some Curb Cuts
- Clearing Intersection Sight Triangles
- Installation of Medians and Other Access Control
- Interconnection of Parking Lots
- Installation of Turn Lanes

D. Updated 2010 Traffic Model - West Sedona

With the completion of the West Sedona North-South Off-Highway Circulation Study in November 1997 (CH2MHill), modifications were made to the 2010 traffic model that reflect a better understanding of future land use, recent changes in the road network and the assumption that the access control improvements recommended in the adopted Sedona Highway Corridor Assessment, would be implemented.

These modifications included consideration of new development outside the City limits in the Long Canyon area, and accessed via Dry Creek Road. The resulting traffic volumes on Dry Creek Road are therefore projected to be higher than projected in the December 1996, Highway Corridor Assessment and depicted in **Figure 6**. Other connections that were added to the model include Hozoni Drive between Thunder Mountain Drive and SR 89A and the extension of Mule Deer to Rodeo Road.

The Sedona Highway Corridor Assessment recommends that several operational improvements be added to the SR 89A corridor, including the placement of medians limiting left turns at several intersections with the highway. The traffic model was also modified to reflect the recommended access control improvements. **Figure 7** depicts the projected traffic volumes with these modifications and no other off-highway improvements in place.

E. Off-Highway Improvements – West Sedona

Off-highway improvements are discussed under the following headings:

- New Road Connections
- Pedestrian/Bicycle Circulation
- Mitigation of Impacts

1. New Road Connections

The primary need for evaluating off-highway facilities is to offset the existing and anticipated traffic congestion on SR 89A and to create more opportunities for neighborhoods to have access to multiple commercial locations without using the highway and to access the highway at signalized intersections where possible.

In 1991, the Sedona Area Transportation Study (SATS) first identified several potential linkages which could be made between neighborhoods by extending existing roadways to connect to other existing roadways. Although the SATS formed the basis of the Circulation Element of the original, adopted **Sedona Community Plan** (Nov. 1991), the Plan noted the controversial nature of some of the specific connections. Original concerns included:

- Disruption of neighborhood character
- Displacement of residences

- Increased traffic on local streets
- Physical constraints of the terrain
- Cost of right-of-way

To provide further guidance in implementing new road connections, the original, adopted plan recommended further study of these road connections:

"Although the interconnection of subdivisions has its technical benefits for circulation purposes, the City of Sedona should closely review any such proposal before implementation to re-evaluate the community's sentiment on the issues which have caused prior dissatisfaction with these proposals. It should be recognized that although a certain connection may be identified for study, it does not imply that the linkage will eventually be built. In fact, in some case the study will build credibility as to why a linkage should not be constructed due to excessive negative issues associated with the corridor in question. In the future, other potential connections may also be identified which are not currently specified in the Sedona Community Plan.

It is recommended that the City of Sedona undertake a Corridor Route Location Study for any major new roadways or connections prior to design which identifies and evaluates the following:

- *Need for linkage*
- *Justification*
- *Forecast traffic volumes on new linkages*
- *Alternative routes between two points to be connected*
- *Environmental and scenic impacts*
- *Residential/commercial displacement*
- *Impact on the quality of residential life*
- *Impact on utilities/easements*
- *Public sentiment*
- *Conceptual design*
- *Feasibility*
- *Cost/benefit*

As new development occurs, the City of Sedona should review the potential for new connections to adjacent subdivisions and take advantage of opportunities which present themselves for the City to connect subdivisions as part of those projects."

To fulfill these Community Plan objectives, the West Sedona North/South Off-Highway Circulation Study process was begun in 1996 and completed in November 1997 by CH2MHill.

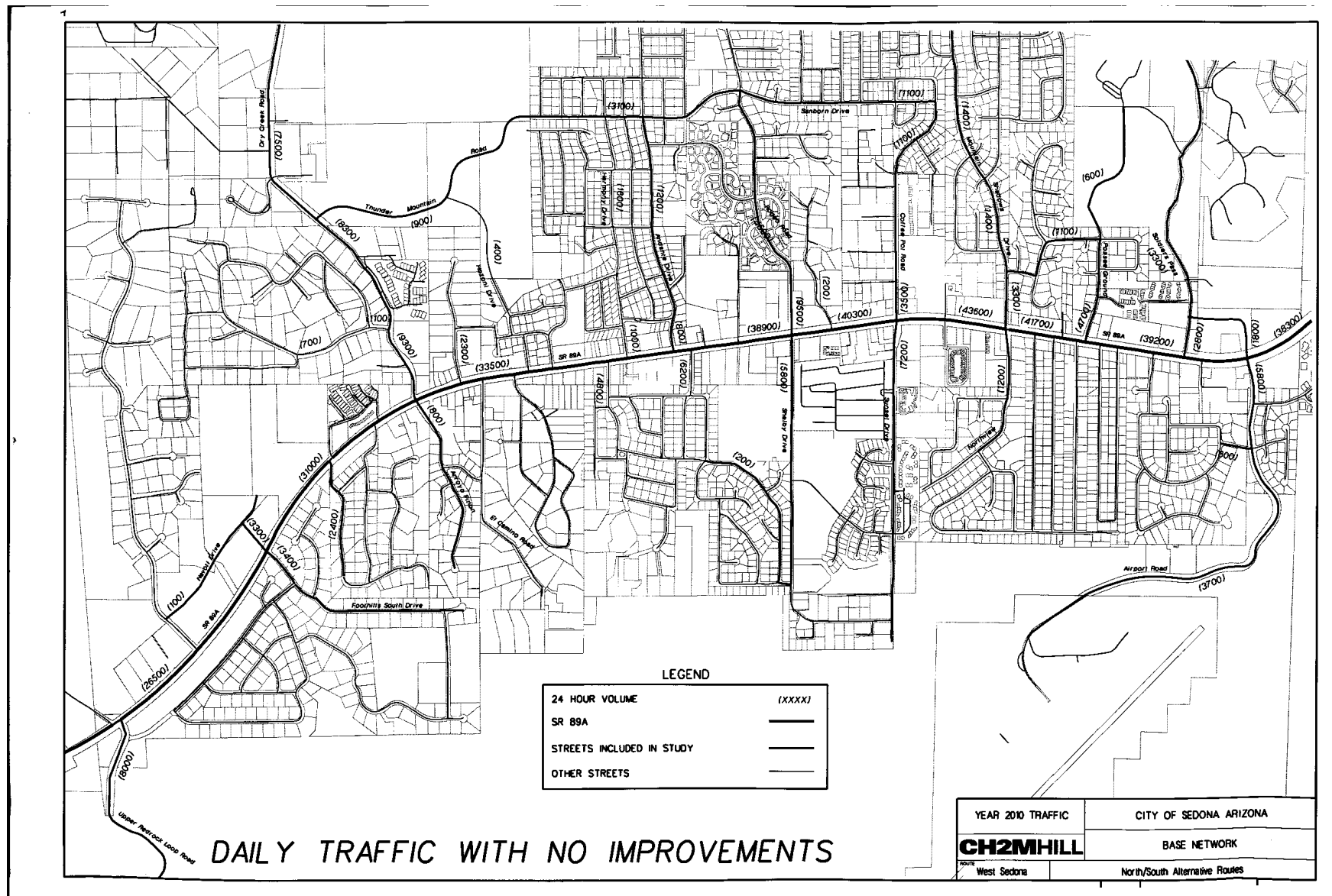


Figure 7 BaseNetwork Map

The process was developed to recommend a plan from the numerous ideas, suggestions and planning concepts created since the completion of the Sedona Area Transportation Study in 1991. Significant resources included:

- The original, adopted, Sedona Community Plan (and the Sedona Area Transportation Study)
- Master Facilities Program (Management Services institute, 1992)
- West Sedona Commercial Corridor Study (Phase One)

Over 50 potential connections were initially presented to neighborhood groups in 20 separate meetings from January through May 1997. Residents comments and concerns were recorded. Following these meetings, an initial screening was performed, eliminating many potential connections based on fatal flaws. Following this, an evaluation process was utilized that rated each proposed connection in each of a series of categories, including:

- Traffic demand
- Right-of-way impacts
- Neighborhood support
- Safety needs
- Environmental impacts
- Implementation
- Funding Sources
- Multi-modal opportunities

Of the 50 potential road connections evaluated, 15 were recommended for implementation by the study. The study focused only on locations that would not involve removal of existing structures.

In August 1997, the study recommendations were presented to neighborhood groups in four additional meetings. The final report was prepared in November 1997. If all of the off-highway connections recommended in the study are implemented, traffic volumes on SR 89A could be reduced by 32 to 52 percent between Roadrunner Drive and Posse Grounds Drive, most residents would have access to a signalized intersection and all subdivisions would have at least two exit locations. Traffic volumes, however, are only one aspect of the traffic congestion issue. Lack of access control and other traffic management deficiencies are also significant contributors to traffic congestion on the highway. Increased flexibility in off-highway route choices and enhanced accessibility to controlled access points for neighborhood areas will help alleviate the highway congestion.

Potential connections were divided into two major groups:

- Connections implemented through new development
- Connections that would most likely be implemented as capital projects

a. Connections implemented through new development:

The recommended connections in this category would not traverse established residential neighborhoods and would generally be implemented through new residential, or commercial development/re-development. The following connections have not been constructed and are recommended for implementation:

- Completion of Navoti Drive
- Connection between Dry Creek Road and Roadrunner Drive (in process).
- Commercial access connection from Southwest Drive to SR 89A (north side of SR 89A). South side connection could be implemented in conjunction with new development (see *Land Use Element, Special Planning Areas*).
- Commercial access connections between Tranquil Drive, (Andante), Rigby Road, and Madole Drive. A portion of this connection is planned in conjunction with the church property. The remainder could be implemented through re-development. (see *Land Use Element, Special Planning Areas*)
- Commercial access connection from Traumeri Lane to Posse Grounds Road

Although the following unconstructed connections were listed in the study primarily as City capital projects, they may be implemented through new development to address community needs described in the Special Planning Areas in the *Land Use Element*.

- Connection between Rodeo Road and Goodrow Lane (see *Land Use Element, Special Planning Areas*)
- Commercial access connection between Northview Road and View Drive (see *Land Use Element, Special Planning Area*)

In addition, several other commercial access connections could be accomplished through commercial re-development, but were not evaluated in the off-highway study as they would involve existing structures. These are discussed in the *Land Use Element* and in the *Circulation Element* under “B” Highway Improvements, West Sedona.

b. Neighborhood connections that could be implemented as City capital projects.

The recommended connections in this category would be made within established neighborhoods, primarily as City capital projects. However, opportunities for implementation in conjunction with new development should also be evaluated where applicable.

For these neighborhood road connections that could be implemented by the City, it is recommended that the “West Sedona North/South Off-Highway Circulation Study” be utilized as a resource and planning guide in an annual evaluation of capital projects including potential street connections as part of the Flexible Capital Budget process. As an operational document for carrying out specific projects, the Flexible Capital Budget process will determine improvement priorities, availability of funds and provide an opportunity to incorporate appropriate traffic-calming and

other mitigation on a case-by-case basis. The community is encouraged to provide input on all capital improvements proposals. The following neighborhood connections that have not been completed have been recommended in the study:

- Connection of Navoti Drive to Dry Creek Road. The study recommends linking Navoti Drive to Dry Creek Road via Kachina Drive. An alternative utilizes a linkage via White Bear Road. Also a key bike/pedestrian link.
- Connection between El Camino Grande and Arroyo Pinion Drive
- Connection between Panorama and Sunset Drives. Also could be a key pedestrian/bike connection.
- Connection between Oak Creek Boulevard and Birch Boulevard.
- Connection between Willow Way and Rockridge Drive. Also could be a key pedestrian/bike connection.

Reasonable notice to property owners should be provided when proposed road connections are being considered.

2. Pedestrian/Bicycle Connections

One of the objectives of the Off-Highway Circulation Study was to ensure safe and efficient non-motorized traffic circulation within the community. A method for improving the safety of non-motorized traffic would be to provide an alternative to using SR 89A, since this is a high volume facility.

In addition to the incorporation of pedestrian/bicycle path opportunities in conjunction with appropriate new street connections, some independent non-vehicular pathways were recommended. These include:

- A north-side link from Zane Grey Drive to the West Sedona School
- Southside links between Upper Red Rock Loop Road and Foothills South subdivision and a connection east to the Carol Canyon trailhead.
- Southside link between Panorama Boulevard, Sunset Drive and Birch Boulevard

These potential pedestrian/bicycle connections should be discussed with the Parks and Recreation Commission for potential future incorporation into the adopted Trails and Urban Pathways Plan, and subsequent future consideration in the Flexible Capital Budget process.

3. Mitigation of Impacts

Throughout the preparation of the Off-Highway Circulation Study, the residents of West Sedona voiced several significant concerns in relation to the implementation of off-highway connections. Many of these concerns are related to human behavior instead of engineering consideration, and therefore it is impossible to predict if the concerns raised by the residents would occur following implementation of a certain connection. However, there are some traffic design methods that can help to influence the behavior of drivers to produce more favorable operations. Issues raised by residents, such as crime rates and property values, are

not subjects that can be breached by traffic engineering methods, and were not addressed in the study.

Issues that were raised such as traffic safety, vehicle speed, and traffic volumes can be addressed by two different approaches. The first approach is by traffic calming. This includes adding features to the roadway that will influence the driver's behavior. The features themselves can cause a driver to slow down, or even choose a different route. The second method is by traffic control. This includes communicating to the driver the rules for driving on the facility, and then backing up the rules with regulatory penalty. This concept relies on the driver to follow the rules, or by enforcement.

F. City Wide Mitigation of Impacts

Traffic Calming Techniques

Traffic calming includes adding features to the roadway that slightly hinder the ability of the driver to negotiate the facility, the result of this hindrance is a reduction in travel speed or choice to use a different route altogether. The agency that implements traffic calming features is taking on an increased level of liability due to the addition of these features.

Speed Bumps and Humps

Speed bumps have been commonly used in parking areas for several decades, and these features are designed to cause a vehicle to slow down to less than 10 mph in order to negotiate the bump. In the recent past the practice of implementing speed humps on City streets has gained popularity as a method of reducing vehicle speeds. The speed humps are designed to allow a vehicle to cross over the hump comfortably at speeds of 15-25 mph. This is accomplished by making the design features of the hump less drastic than those of a speed bump. The ramp-up slope is more gentle and the width of the top of the hump is typically 5-8 feet in width as compared to less than two feet for a bump. The speed hump feature should be considered where a facility is experiencing speed much greater than 25 mph, and there is a desire to reduce the speed down to 20 - 25 mph. Typically a reason for speeds in great excess of 25 mph on residential streets is cut through traffic that is saving on travel time by using the residential street as a bypass route to an arterial. Following the implementation of speed humps, this time savings may no longer apply, and drivers may return to using the arterial roadway. Therefore, reductions in traffic volumes on residential streets can be realized with the implementation of speed humps.

Traffic Chokers

The use of traffic chokers is primarily limited to intersections. These features are used to neck down the entrance to a residential street by reducing the width to a minimum of 20 feet. The use of traffic chokers may have a slight effect on vehicle speeds but only in the area of the intersection, and a driver may decide to re-route because of the added difficulty in turning onto the residential street.

However, the primary purpose of traffic chokers is to discourage truck traffic from using the residential street by making it rather difficult to turn onto the street.

Since a typical section proposed for future street connections is only 22 feet wide, the addition of traffic chokers to these connections probably would not have any additional effect. Traffic choker features should be considered at neighborhood entrances off SR 89A that may be experiencing unwanted truck traffic, and where the existing roadway width is in excess of 36 feet.

Intersection Islands

An intersection island is constructed in the center of an intersection and is intended to impede the through movements of the intersection. The intersection island causes the through driver to slow down and drive around the island. Typically these features are only implemented at 4-leg intersections, a 3-leg intersection usually requires modification to bow out the intersection opposite of the third leg in order for the through movement to drive around the feature.

Intersection islands are primarily considered to reduce travel speeds of the through traffic at a 4-leg intersection. The design of the feature is intended to impede traffic, not to eliminate the through movement, including trucks. The island should be designed so truck traffic can negotiate the intersection, however, at a greatly reduced speed. Thought should be given to emergency vehicles since these features will also impede response time to an incident. The design of the island, and type of landscaping implemented could be designed to allow emergency vehicles the option to drive over the island if necessary.

Median Islands

Raised medians on SR 89A would only restrict turning maneuvers and would be designed to avoid impeding through travel. However, median islands can be implemented on residential streets for the purpose of restricting travel. The median island is designed to form rather narrow lanes on each side, maybe as narrow as eight feet in width, in order to reduce travel speeds. The median islands are not intended to be continuous, merely to form short pinch locations. The total length of the islands is typically 50 feet in length, and could incorporate landscaping or pedestrian refuge features.

The raised median feature should be considered where a slight reduction in travel speed is desired, and should only be located where the median will be in clear view of drivers from both directions. Placement of the median would impact the operation of adjacent driveways, therefore a section of roadway that is clear of access points should be chosen.

Traffic Control Techniques

Traffic control involves communicating to the driver limits or regulations that are applied to the facility. The purpose of traffic control devices is to help insure roadway safety by providing for the orderly and predictable movement of all traffic, and to provide warnings as needed to insure the safe and informed operation of the traffic stream.

Stop and Yield Signs

The “Manual of Uniform Traffic Control Devices” (MUTCD) published by the US Department of Transportation gives clear guidelines when these signs are warranted. Because the Stop sign causes a substantial inconvenience to motorists, it should be used only where warranted. Warrants for the use of a Stop sign include intersections where a combination of high speed, restricted view, and serious accident record indicates a need for control. Prior to the application of these warrants, consideration should be given to less restricted measures, such as the Yield sign.

Speed Limits

The Speed limit sign shall display the limit established by law or by regulation after an engineering and traffic investigation has been made. Speed zones typically have to include a combination of signing and enforcement to see an appreciable change in travel speeds.

Weight Limits

Weight limit regulations can be an effective deterrent to cut through truck traffic on a residential street. If the intention of the weight limit is to restrict trucks of a certain size, then the regulation should reference empty weight. The legend of signing may read NO TRUCKS OVER XXX LBS EMPTY WEIGHT.

Implementation Guidelines

The most important element to implementation of a mitigation method is identification of the problem. If complaints are being filed pertaining to high speeds, then the travel speeds should be surveyed for confirmation of the problem. If high traffic volumes are identified as the problem, then investigation should be made as to the source of the excess traffic. Without clear understanding of the problem, implementation of a mitigation measure may be ineffective, or move the problem to a new location. The City of Sedona should identify thresholds to easily identify a problem that should be addressed. Speed reduction measures could be considered once the average travel speed is a certain amount above the posted speed. Excessive increase in traffic volumes could be set as a rate of growth in traffic volumes that is unusually higher than the City as a whole. Policy decisions such as these could eliminate the “squeaky wheel gets the grease” situations.

Once a problem is identified, the first recommendation should be to implement methods that do not involve physical features. If existing regulations are in place then these should be used before other

features or regulations are added. Signing and enforcement of existing speed limits or weight limitation should be encouraged before traffic calming features are constructed.

Traffic calming features are intended to slightly hinder the operations along the roadway. Implementation of these features should be done in small doses until the desired results are obtained. For example, if intersection island are to be implemented along a corridor, begin with the implementation of one or two and monitor the results, instead of immediately implementing an island at every intersection. Many communities are doing demonstration projects of traffic calming that include a variety of features, and then encourage the public to comment on their experiences.

G. Pedestrian Circulation

One of the primary attractions of Sedona is its scenic quality combined with a climate which is conducive to walking a majority of the year. Pedestrian paths should be established which link activity centers to neighborhoods, allowing residents the opportunity to make short trips without an automobile for the purpose of business, visiting or worship. Pedestrian paths should be considered for linkages to shuttle transit stops to encourage the pedestrian/transit interface.

Major parking sites should incorporate generously-wide pedestrian walkways in guiding persons to shuttle transit stops, businesses or in the direction of a scenic site, providing a clearly legible, pleasant walkway to Sedona's attractions.

Traditionally, pedestrian walkways are identified as sidewalks along streets. Alternative designs may incorporate walkways separated from the auto traffic, much the same way that bicycle path design can be approached. In planning designated pedestrian pathways, the City should consider the following areas as potentials for the integration of pedestrian walkways:

- Greenbelts/Parks
- Scenic/Recreational Sites
- Chapel of the Holy Cross
- Linkages to Uptown
- SR 89A and SR 179 Corridors
- Linkages to Tlaquepaque
- Activity Centers
- Arts and Cultural Centers
- Oak Creek Riparian Corridor
- Special Planning Areas

The establishment of a walkway along Oak Creek, or linking scenic sites, would emphasize the character and ambiance unique to Sedona. Redesign of existing walkways should be considered in areas with a high profile or high pedestrian traffic volumes, to provide adequate width or ambiance in coordination with shuttle transit facilities or other alternative mode facilities. Design considerations should include moving the pedestrian pathways away from the roadways wherever possible, to enhance the walking experience. Pedestrian walkways can be of a variety of materials from concrete to asphalt or natural gravel, depending on the experience intended for the pedestrian.

Low-level bollard lighting should also be considered for walkways in areas where ambient lighting would not benefit the walkway. This lighting would provide safe illumination of the walkway while providing an additional measure of security.

Figure 10 adopted *City Trails and Urban Pathways Plan* (see *Open Space Element*) provides a comprehensive plan for pedestrian linkages within the City.

H. Bicycle Circulation

The use of the bicycle as an alternative to the automobile should be encouraged by the City of Sedona. The bicycle can be used for commuting to work, shopping trips or for recreation circulation while avoiding contributions to air pollution and depletion of fuel resources. The bicycle allows the rider to experience the natural surroundings while deriving a physical benefit.

The City has planned for potential bicycle routes in conjunction with the adopted *Trails and Urban Pathways Plan*, **Figure 10** (see *Open Space Element*). Sedona should eventually be known as a bicycle-friendly community.

In reviewing the plans for new development, the City should encourage the development of bicycle linkages. Ideal linkages for bicycles exist at the ends of cul-de-sacs, running between properties at the end of the cul-de-sac. These links can then be routed to adjacent streets, greenbelts, commercial sites and parks, providing as safe separation for the bicycle mode of circulation from the automobile. Opportunities to link open space with recreational and educational facilities should be taken advantage of in planning a bicycle circulation system.

Future connections between subdivisions, as well as all local streets, offer safe bicycle routes. Not all such linkages need to be identified as bicycle route by signing or other features, but studies show that recreational bicyclists tend to favor low volume roadways for pleasure riding and connections to adjacent neighborhoods offer the opportunity to visit neighbors by bicycle, while foregoing the automobile.

Facilities for the parking of bicycles should be considered in the approval of new development, and as the opportunity presents itself for existing development. Sites which are historically attractive for bicycle traffic and warrant consideration of bicycle parking facilities include:

- Schools
- Libraries
- Parks
- Governmental Centers and Employment Areas
- Transit Centers/Major Bus Stops
- Popular Scenic/Recreation Sites
- Youth Centers
- Arts and Cultural Facilities

Bicycle parking facilities design should consider safety, security, and lighting features. Major sites might also integrate water fountains and access to public restroom facilities. Bicycle facilities should also be interfaced with shuttle transit and pedestrian facilities. Shuttle transit vehicles should provide limited accommodations for transporting bicycles so persons may employ more than one circulation mode in reaching their destination.

I. Street Design Guidelines

The design of the physical features of collector and local streets should be based, in part, upon the Institute of Transportation Engineers (ITE) Recommended Practice entitled *Recommended Guidelines for Subdivision Streets*. It must be recognized that these standards have been developed for application on a national basis, and do not always take into consideration the environmental conditions or special circumstances that may be encountered in a unique setting such as that of Sedona. As a result, it is recommended that the City adopt new design guidelines as overall policy, in light of community goals to maintain community character, preserve natural open space, and respect environmental features, utilizing ITE guidelines as an interim solution. Final approval of such deviations will be made by the City Council, based on Planning and Zoning Commission recommendation.

Specifications related to right-of-way width, roadway width, the use of curbs, sight distances, maximum grade, and the use of sidewalks should be dependent upon terrain and development density and based on the traffic requirements of the roadway and nature of the area in which the roadway is located.

The various types of arterial, collector and local roadways are subject to variance at the direction of City staff in regard to the use of curbing, sidewalks and bicycle facilities.

The arterial roadways (SR 89A and SR 179) are under the authority of Arizona Department of Transportation (ADOT), although the City of Sedona should encourage ADOT to respect community desires and utilize special design standards that relate to community character.

J. Shuttle Transit

The issue of providing transit service in the Sedona area has been debated from a variety of different perspectives. It is apparent that the utilization of some type of transit system could be a key factor in the City successfully providing an alternative to the automobile.

The *Sedona Area Transportation Study* presented several alternative approaches for providing transit service in the Sedona area.

Since the adoption of the **Sedona Community Plan** in 1991, the importance of conducting a feasibility study of various transit options has been recommended as a means of addressing the continually growing traffic volumes.

If determined feasible, a shuttle transit system should not only meet the needs of a transit market, but also concentrate on a means of reducing automobile traffic penetrating the City. This traffic could then be diverted to satellite parking sites with visitors, employees and business patrons transported to the various local sites by a local transit system.

Consideration should also be given to working with adjacent communities and the US Forest Service to examine the potential of developing satellite parking sites, and the possibility of strategically reducing parking availability between these areas. It is also recommended that the transit shuttle system be designed to facilitate the use of other alternative modes of circulation by considering route locations which provide access to attractive pedestrian areas, recreational sites and bicycle routes, and be capable of accommodating the transport of bicycles and handicapped persons to a reasonable level.

The US Forest Service proposed three “gateway” locations that could facilitate a future shuttle system in conjunction with the Forest Plan update recommendations for visitor information services strategy. This would include the Oak Creek Canyon Overlook, the Cultural Park, and the future Visitor Center in the Village of Oak Creek.

Transit Feasibility Study

In 1997, the US Forest Service began the preparation of the “Oak Creek Scenic Corridor Action Plan” with the ultimate goal of providing a direction for future planning for transportation and the interpretation of Oak Creek Canyon’s resources for public use. In conjunction with this planning process, a report was prepared by “Transit Plus” to identify the feasibility of transit service in the region and the degree to which it could help the US Forest Service meet the needs of visitors while protecting forest resources.

Also in 1997, a local organization: “Action Coalition for Transportation Solutions (ACTS)” was instrumental in the award of a short-term technical assistance grant from “Community Transportation Association of America (CTAA)” for a general study of transit feasibility. ACTS envisions this study and the US Forest Service study as catalysts for cooperative and coordinated transit planning for the area to help identify incentives for a private concessionaire to run a transit operation as a business. The City, ADOT, the Counties, and the US Forest Service could then set mutual goals and standards for service, set partnership responsibilities and develop a process for requesting proposals from transit providers.

The study, completed in October 1998, concluded that the City’s traffic and parking management problems can only be successfully addressed through comprehensive and common strategies developed in a partnership with the US Forest Service and both county governments.

The report recommended the implementation of an area-wide public transportation system that is privately run, financially independent and self-sufficient, offering frequent service at 15 minute intervals most of the year, for the City, Village of Oak Creek and Oak Creek Canyon. Passengers would use a passport or pass system for access, with individual trip tickets available to infrequent riders.

The 1998 report also recommended that the system be operated by a private contractor or concessionaire who would bid on a management contract awarded by the City or a consortium made up of the City, the US Forest Service and the Counties. The financial independence and self-sufficiency of the system would be dependent on many factors, including, but not limited to ridership, fares and/or other fees.

The final CTAA report “Ensuring a Livable Future – Transportation and a Strategic Vision for the Greater Sedona Community” was presented to the City Council in February 1999. In April 1999, a joint resolution in support of transit for the greater Sedona area was adopted by the City, the US Forest Service and Coconino and Yavapai County (see *Appendix*). This working consortium, including ACTS, initiated a process to work together to determine how a public/private partnership could design, plan and ultimately operate privately-run shuttle system.

In 2000, the consortium prepared a scope of work to conduct a Sedona Area Transit Feasibility Study. In April 2001, the Sedona City Council entered into an Intergovernmental Agreement with ADOT for funding assistance to conduct the study. The City also received funding assistance from Yavapai and Coconino counties. In August 2001, an RFP was advertised and sent to over 60 transportation planning firms. A selection committee comprised of representatives of the consortium and ADOT’s Transit Division recommended that the City contract with Nelson/Nygaard Consulting Associates. On January 8, 2002, the Sedona City Council approved this selection and authorized the City to enter into a contract with Nelson/Nygaard on behalf of the consortium.

The consultant is expected to assess the overall feasibility of the shuttle service, identify financial resources, and other requirements necessary to the success of the project, encourage public input, design the system and prepare an implementation plan. The study is expected to be completed by December 2002.

7.3 ACTION PROGRAM

The Action Program for the *Circulation Element* of the **Sedona Community Plan** lists the specific action necessary to implement the Community Plan.

The Planning and Zoning Commission should review and provide recommendations to the City Council for revising the following Action Program on an annual basis in order to continue to pursue implementation of the **Sedona Community Plan** in an expeditious manner and to coincide with the annual strategic planning and Flexible Capital Budget process.

Future Actions

1. Prepare a specific area plan for the SR 179 corridor through dialogue with Arizona Department of Transportation to pursue SR 179 improvements that result in maximum preservation of natural vegetation and open space, guide future development, guide re-development options in the commercial area, provide for community needs, control access, locate potential shuttle transit stops, accommodate—pedestrians and bicycles and minimize impacts on adjacent property owners. Evaluate potential creek area park sites, including the Tlaquepaque area, and acquisition opportunities (see also *Land Use* and *Open Space Elements*). Evaluate alternative traffic control improvements to the SR 179/89A intersection through coordination between ADOT, the City and major stakeholders and support the programming of SR 179 and “Y” intersection construction only upon completion of the specific area plan. Continue to allocate funding to assist ADOT in the evaluation of the intersection (2002-03 Work Program).
2. Implement Uptown Area pedestrian improvements and access control.
3. Participate in the preparation of a Circulation Element for a Verde Valley regional plan that will address traffic circulation issues and improvements that are relevant to Sedona and the Sedona region. Examples include evaluation of alternate routes or emergency/shuttle-restricted access between SR 89A and SR 179 and evaluation of future signage on I-17 that would designate SR 260/89A as an alternate route to Sedona (See *Regional Coordination Element*).
4. Create a “Reduce Your Trips” program. Include home delivery, car pooling, library bookmobile, visiting nurses, payment of utility bills through checking account or mail instead of hand delivery, auto check deposits, televised public meetings.
5. Initiate Public Right-of-way Maintenance Program to maintain public right-of-way approaching and throughout Sedona on all major arterial roadways and collector streets.
6. Construct SR 89A Corridor Public Area and Infrastructure Improvements to establish unified system of pedestrian area improvements and a network of public infrastructure to support ultimate development.
 - Establish Local Improvement District (LID) to prepare Corridor Specific Plan

- Prepare Corridor Specific Plan and LID Improvement Plan and Cost Estimates
- Fund capital improvements
- Levy Assessments and construct public areas and infrastructure improvements

On-going/In Process:

- Implement Pedestrian/bicycle pathway system and connections in conjunction with Trails and Urban Pathways planning and the **Sedona Community Plan**.
- Implement off-highway connections in west Sedona.
 - Support connections provided in conjunction with private development, consistent with the Sedona Highway Corridor Assessment, Off-Highway Circulation Study and **Sedona Community Plan**.
 - Evaluate and incorporate future City funded projects into the Flexible Capital Budget; initiate preliminary design
 - Acquire necessary right-of-way for City funded projects.
 - Design, construct, implement connections and traffic calming as needed (on-going)
- Implement access Control and TSM improvements on SR 89A
 - Detailed evaluation of median placement, participation of commercial property owners
 - Design, construct medians
 - Implement other TSM improvements (on-going)
- Implement new traffic signals; realign intersections as warranted.
- Complete Shuttle Transit Feasibility Study. Evaluate specific implementation needs based on the results.